CHINA

Was It a Lab Leak? The Mysterious Origin of COVID-19

Matt Ridley and Alina Chan, authors of the new book *Viral: The Search for the Origin of COVID-19*, say the preponderance of evidence now points toward a lab origin and genetic engineering.

ZACH WEISSMUELLER | 11.18.2021 11:10 AM

Where did the virus that changed the world come from?

The prevailing theory for a long time was that wild animals sold as food at a wet market in Wuhan, China, had started the outbreak.

One of the first scientists to seriously question the official narrative was Botao Xiao, who in February 2020 published a pre-print paper arguing that "the killer coronavirus probably originated from a laboratory in Wuhan."

The author pointed out that there was no evidence that the vendors at the wet market in Wuhan sold bat meat. On the other hand, there *were* two research labs studying bat-borne coronaviruses located in Wuhan, where a virus could have accidentally infected workers, causing them to spread the disease to the general public. Xiao withdrew the paper two weeks later, after Chinese authorities declared that the lab-leak theory had no merit.

The Chinese government proceeded to clamp down on research into the virus's origins and ordered the closure of a lab that had shared the virus's genetic sequence with other scientists in January 2020. The government also forced the lab to destroy its viral samples.

To this day, the Chinese government won't allow outside researchers to test blood drawn from employees of the Wuhan Institute of Virology who, according to a U.S. intelligence report, were hospitalized for a flu-like illness in November 2019—weeks before the first documented human-to-human transmission. Chinese authorities cited privacy concerns to the World Health Organization (WHO) team that requested the samples.

There's no direct proof that the virus originated from a lab. But there's also no such proof that humans first became infected by eating bats or through exposure to pangolins, theories that were treated as unimpeachable fact early in the pandemic.

In February 2020, a group of scientists signed a statement published in *The Lancet* denouncing speculation about potential nonnatural origins of the virus as "conspiracy theories."

Only following the publication of leaked emails did it become clear that the scientist who brought his colleagues together to co-sign the *Lancet* statement was Peter Daszak, head of EcoHealth Alliance, the nonprofit that secured U.S. government funding for controversial research on bat-borne coronaviruses at the Wuhan Institute of Virology. Daszak assured his co-signers that the EcoHealth logo wouldn't appear on the letter and wrote that he hoped "to avoid the appearance of a political statement."

Daszak also co-authored a June 2020 op-ed in *The Guardian* headlined "Ignore the Conspiracy Theories: Scientists Know COVID-19 Wasn't Created in a Lab" without disclosing a potential conflict of interest.

Media coverage following the publication of the *Lancet* letter overwhelmingly framed discussion of the lab-leak hypothesis as a "conspiracy theory," often tying it to former President Donald Trump after he and former Secretary of State Mike Pompeo made public statements promoting the lab-leak theory as the explanation.

"That episode does not reflect well on scientists," says science writer Matt Ridley, co-author of the new book *Viral: The Search for the Origin of COVID-19.*

Ridley says that White House COVID-19 adviser Anthony Fauci's emails, which were made public through a Freedom of Information Act request, show that behind the scenes scientists were taking the lab-leak theory seriously all along.

"A number of leading virologists were talking to each other and were saying to each other, 'we think this might look a

bit like a virus that's been engineered in the laboratory,'" says Ridley, referencing a January 31, 2020, email in which researcher Kristian G. Andersen says that "one has to look really closely at all the sequences to see that some of the features (potentially) look engineered." Fauci replies a day later, "Thanks, Kristian. Talk soon on the call."

"And at the end of that phone call, they all did a very rapid *volte-face,* and started writing articles almost immediately," says Ridley, referring to an influential article Andersen and his colleagues published in *Nature* on March 17, 2020, stating that "our analyses clearly show that SARS-CoV-2 is not a laboratory construct or a purposefully manipulated virus." On March 6, Andersen emailed Fauci to tell him the paper had been accepted for publication, to which Fauci replied, "Nice job on the paper."

But Ridley says that it's Daszak's efforts to obscure his connections to the Wuhan Institute of Virology while publishing attacks on the lab-leak hypothesis that are most alarming.

"It does raise very serious concerns that Dr. Daszak needs to answer," says Ridley. "I've tried to correspond with him numerous times. I've never yet had a response…I never said anything rude about him, but he blocked me on Twitter. So I can't get answers out of him."

Daszak did not reply to *Reason*'s interview request.

Ridley's writing partner on the new book is the Broad Institute of MIT and Harvard's Alina Chan, one of the earliest and most outspoken public skeptics of the natural-origin hypothesis. She says that when she and her colleagues published a pre-print paper questioning the consensus, she hadn't been aware of the *Lancet* letter organized by Daszak. She says she believes it could've had a major chilling effect on the scientific discussion in those early days.

"They were saying that anyone saying that this virus didn't come from nature is a conspiracy theorist," says Chan. "Other people, when they read this letter, they might have thought, 'I'm not going to put my neck out to say that this may have come from a lab.'"

Chan, a molecular biologist, argued in the paper that because SARS-CoV-2 was so well adapted to humans, there was reason to be skeptical that it had recently come from an animal. If it had recently come from bats or pangolins, she would've expected the virus to have been rapidly mutating in the early days of the pandemic to become better adapted to human tissue.

Chan partially credits this insight to her experience in the severe acute respiratory syndrome (SARS) outbreak of 2003, which she lived through in Singapore.

"In that situation and that outbreak, the virus had rapidly picked up dozens of mutations in the early three months," says Chan. "By comparison, for SARS-CoV-2, that had very few of these mutations. So it's suggested to me that this virus had really picked up many useful mutations for infecting and transmitting amongst humans prior to its detection in December 2019."

Another major difference is that during the 2003 outbreak, authorities discovered previous SARS infections among animals being sold at markets in south China within a couple of months. That's not the case with SARS-CoV-2, despite initial suspicions that a wet market was to blame.

"Even though the first class of cases identified was at the seafood market, they never found any signs of animals that were infected by this virus," says Chan. "So up until today, there's no sign of an animal [in Wuhan] that was ever infected by SARS-CoV-2 and then gave it to humans."

When the WHO sent a team to investigate the virus's origins in January 2021, Daszak was the only American member included. The team dismissed the lab-leak hypothesis before WHO leadership later backtracked.

Daszak granted an interview to *60 Minutes* following that trip to Wuhan and suggested that farm animals were the likely culprit.

"Now what we've gotta do is go to those farms and investigate. Talk to the farmers. Talk to their relatives. Test them. See if there were spikes in virus there first," Daszak told *60 Minutes.* But no farm animals have been identified as the hosts yet.

There's a detail that emerged after the *60 Minutes* report that Ridley would like Daszak to explain: Recently-leaked documents show that EcoHealth Alliance applied for a research grant related to inserting what's called a furin cleavage site into SARS-like coronaviruses. This very furin cleavage site may be what makes SARS-CoV-2 so infectious, and it's what distinguishes it from any SARS-like coronaviruses as yet found in the wild. The grant request was rejected. But did

the Wuhan laboratory engage in this research even without funding from that grant? Daszak may be able to help answer that question.

"The fact that that is probably the feature that makes the virus sufficiently infectious to start a pandemic means that it is a highly important thing," says Ridley. "So you would think that a scientist who knew that he had put in a grant application in 2018 to put furin cleavage sites into SARS-like viruses…would volunteer that information early in the pandemic."

Ridley and Chan also find it suspicious that when China's premier bat coronavirus expert—and Daszak's collaborator in Wuhan—published her complete analysis of the SARS-CoV-2 genome, she neglected to mention this highly unusual furin cleavage site.

After the *60 Minutes* interview, more leaked documents showed that EcoHealth Alliance worked with the Wuhan Institute of Virology to make several bat-borne SARS-like coronaviruses—and even Middle East respiratory syndrome (MERS)—more infectious to human cells.

Chan and Ridley say that when they started writing the book they didn't have a strong view about which theory was correct, but these recent revelations have shifted their thinking in favor of the lab-leak theory.

"In light of grant proposals and reports released in the past 2 months," Chan wrote on Twitter, "we know novel SARS-like viruses were being synthesized and engineered at unprecedented scale."

"That changed my mind completely, knowing that there actually was a plan, a pipeline, a protocol for doing this work in 2018. So now for me, genetic engineering is very much on the table," says Chan. "If it came from a lab, [the likelihood is] close to a 50–50 chance that [genetic engineering] happened."

This question was at the center of a heated exchange between Fauci and Sen. Rand Paul (R–Ky.) over possible National Institutes of Health (NIH) funding of so-called gain of function research, which involves purposely making a virus more infectious to humans.

But much of the blame for the devastating scope of the pandemic, says Ridley, rests on Chinese authorities, who punished whistleblowers like ophthalmologist Li Wenliang, who tried to get the word out about the emergence of a new SARS-like virus to his colleagues. The government successfully kept human-to-human transmission of the disease under wraps for weeks and maybe longer.

"Communist regimes tend to be secretive," says Ridley. "There tends to be an assumption that you don't talk about things unless you're allowed to, rather than the other way around. But [Chinese President] Xi Jinping, being a much more dictatorial and authoritarian ruler than his immediate predecessors, by 2019 it was more and more the case that scientists in laboratories and doctors in hospitals were under orders not to communicate with the outside world about things that the regime might not want them to…Did that play a part in the epidemic escaping and getting to the rest of the world and turning into a pandemic? You bet it did."

The Wuhan Institute of Virology houses samples of RaTG13, a bat virus that is one of the closest known genetic matches to SARS-CoV-2. But to this day, information about other coronaviruses in the Wuhan lab hasn't been released, so we don't know if the lab was working with a virus that's even more closely related to SARS-CoV-2.

The lab's public database of viral samples could hold some answers, but it was taken offline in February and had been modified in December, which we know because of work by the Dedicated Research and Scientific Team Investigating COVID-19 (DRASTIC), a decentralized group of volunteers who compile and analyze open-source material and leaked documents to investigate the origins of COVID-19.

"Once I realized [the lab-leak hypothesis] was being discredited without any evidence, I just couldn't stay silent," says Yuri Deigin, a biotech entrepreneur and one of the founding members of DRASTIC.

A key revelation uncovered by the group was that the Wuhan Institute of Virology database was first taken down in September 2019, three months before the pandemic became publicly known. A description of the database was modified on December 30, 2019, the day Shi Zhengli told Chinese state television that her lab first obtained samples of the virus in Wuhan.

Wuhan scientists accessed the database a few times before it was permanently removed in February 2020 for alleged "security concerns."

"For them to take it down is very suspicious. And of course, Shi's explanation that she took it down to prevent hackers

from attacking is complete bullshit because it was a public database to begin with," says Deigin.

A member of the DRASTIC team also discovered that the Wuhan team had collected key samples—including one of the virus's closest known genetic matches—from a mine where some workers had fallen sick and died after clearing out bat droppings. Chinese authorities have denied outsiders any access to examine the mine.

Though there's mounting circumstantial evidence to support the lab-leak theory, government officials maintain that the natural-origin hypothesis is more likely. A U.S. intelligence report declassified on October 29, 2020, said four intel agencies had low confidence that the virus most likely emerged in nature; one agency had moderate confidence that it leaked from a lab; and analysts at three agencies remained "unable to coalesce around either explanation without additional information." The report did conclude that SARS-CoV-2 was unlikely to be a biological weapon.

NIH Director Francis Collins, who didn't reply to *Reason*'s interview request, told computer scientist and podcast host Lex Fridman in early November that he's open to the lab-leak hypothesis but still believes strongly that the virus is of natural origin.

Between July 2020 and January 2021, an international team of scientists captured bats in Laos carrying a newly discovered coronavirus that's the closest known genetic match to SARS-CoV-2—even closer than the virus held in the Wuhan lab, which some say supports the natural-origin theory. But Ridley, Chan, and Deigin point out that it lacks the crucial furin cleavage site, which they suspect scientists inserted in a lab.

Supporters of the natural-origin theory point out that no "smoking gun" virus has yet been found in the version of the Wuhan database uncovered by DRASTIC. But Chan points out that this version of the database is years out of date because the Wuhan researchers generally don't enter new viruses until they've had a chance to sequence and publish studies about them.

"So we have barely any concept of what viruses and sequences they might have found after 2016 in the years leading up to COVID-19," says Chan. "So without access to the information it becomes very difficult for us to guess whether or not they finally found the precursor of SARS-CoV-2 in the labs and were working with it."

Ridley says that he doesn't want a fear of biotechnology, which he credits for alleviating human suffering, to hamper scientific progress because of what may have happened in Wuhan. But he thinks scientists should convene an international forum to set stricter ethical guidelines prohibiting dangerous types of research, such as harvesting bat viruses from faraway caves and bringing them to large urban centers to run experiments that make them more infectious to human cells. One China-produced documentary released in December 2019 showcases researchers doing this work, some of them without proper protective gear.

"Going out and harvesting viruses in wild places with pandemic potential and bringing them back to cities to work on them, probably isn't very sensible," says Ridley. "If we could get the U.S., the U.K., Australia, Japan, other major countries to sign a treaty saying, 'When there's an outbreak in our country, we promise to open up as far as possible and tell you everything we know,' then the very fact that some countries won't sign that treaty will itself put pressure on them."

He points to the emergence of the International Atomic Energy Agency as a model for nations to follow in terms of preventing future lab leaks of potentially pandemic-causing pathogens.

And Ridley says that despite the months of obfuscation by Chinese authorities, virologists, and even some U.S. media outlets, he's optimistic that the truth will emerge in time.

"It may take a long time," says Ridley. "The fall of the Soviet Union did lead to significant revelations about biological accidents there…I think therefore it may take a change of regime in Beijing before we find out more. But I think there are people who know what happened, whatever happened, even if it's just what happened in a market…There are plenty of people who say it's too late; we've lost the chance to find out. I'm not one of them, at least not yet."

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